Roll No. ☐☐☐☐☐☐☐☐☐☐☐   Total No. of Pages : 02

Total No. of Questions : 07

B.Sc.(Computer Science) (2013 & Onwards)   (Sem.–5)
NUMERICAL ANALYSIS
Subject Code : BCS-501
M.Code : 72574

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :
 1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
 2. **SECTION-B contains SIX questions carrying TEN marks each and students have to attempt ANY FOUR questions.**

SECTION-A

1.   **Write briefly :**

   a)   Define Error generation

   b)   State Bisection method.

   c)   Define Forward difference.

   d)   Define Shift operator.

   e)   State Triangular method.

   f)   Define interpolation.

   g)   State method of least square for curve fitting.

   h)   State Trapezoidal Rule.

   i)   State Weddle Rule.

   j)   State Runge-kutta method.

SECTION-B

2.   Find the real root of the equation $\cos x - 3x + 1 = 0$ by using iteration method.

3.   Explain the method of False position in detail.

4.   Using divided difference, find the value of $f(8)$, given that

$f(6) = 1.556, f(7) = 1.690, f(9) = 1.908, f(12) = 2.158$.

5.   Use Stirling's formula to find y_{28}, given $y_{20} = 49225$, $y_{25} = 48316$, $y_{30} = 47236$, $y_{35} = 45926$, $y_{40} = 44306$.

6.   Use Romberg's method to compute $\int_0^1 \dfrac{dx}{1+x^2}$, correct upto 4 decimal places.

7.   Tabulate by Milne's method the numerical solution of $\dfrac{dy}{dx} = x + y$ with the initial conditions $x_0 = 0$, $y_0 = 1$ from $x = 0.20$ to $x = 0.30$.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.